

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/085146 A1

(51) International Patent Classification⁷: **B32B 15/08**

(21) International Application Number:
PCT/KR2004/000666

(22) International Filing Date: 25 March 2004 (25.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2003-0018811 26 March 2003 (26.03.2003) KR
10-2003-0018812 26 March 2003 (26.03.2003) KR

(71) Applicant (for all designated States except US): **LG CHEM LTD** [KR/KR]; LG Twin Tower, East Tower, 20, Yeouido-dong, Yeongdeungpo-gu, Seoul 150-721 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PARK, Soon-yong** [KR/KR]; LG Apt 3-516, Doryong-dong 386-1, Yuseong-gu, Daejeon 305-340 (KR). **KYUNG, You-jin**

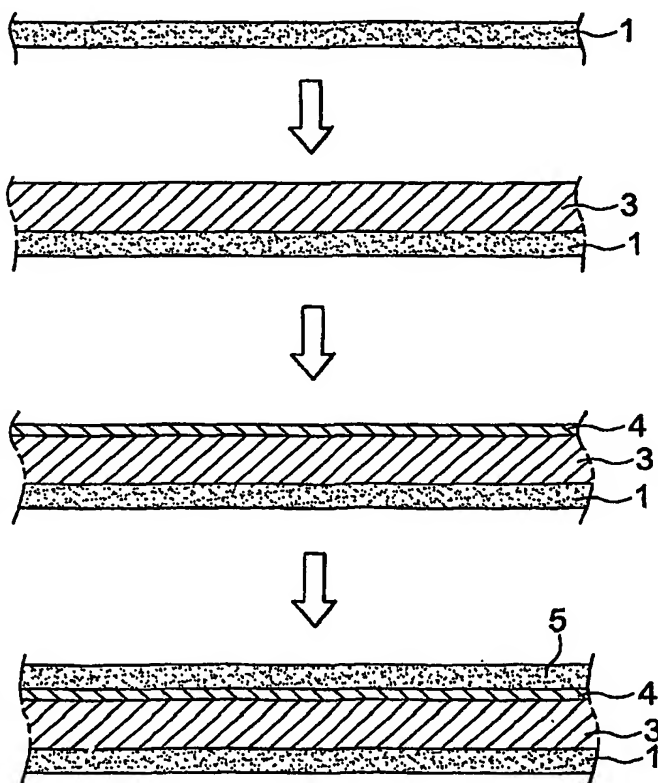
[KR/KR]; Gaebong 3-dong 361-514/2, Guro-gu, Seoul 152-815 (KR). **SONG, Heon-sik** [KR/KR]; Dream World Apt 108-801, Jangdae-dong 344, Yuseong-gu, Daejeon 305-308 (KR). **AHN, Byeong-in** [KR/KR]; LG sawaon Apt 9-301, Doryong-dong 381-42, Yuseong-gu, Daejeon 305-340 (KR). **KO, Joo-eun** [KR/KR]; Yoowon Apt 4-606, Dangsan-dong 4-ga, Yeongdeungpo-gu, Seoul 150-044 (KR). **PARK, Yong-jun** [KR/KR]; Munji-dong 104-1, Yuseong-gu, Daejeon 305-380 (KR). **JANG, Se-myung** [KR/KR]; Hyundai 4-cha Apt. 403-1101, Songcheon 1-dong, Deokjin-gu, Jeonju-si, Jeollabuk-do 561-765 (KR).

(74) Agent: **CHO, In-jae**; Newkorea International Patent & Law Office, 3rd Fl., Janghyun Bldg., 637-23, Yeoksam-dong, Gangnam-gu, Seoul 135-909 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,

[Continued on next page]

(54) Title: **DOUBLE-SIDED METALLIC LAMINATE AND METHOD FOR MANUFACTURING THE SAME**



(57) Abstract: The present invention relates to a double-sided metallic laminate for a printed circuit board and a method for manufacturing the same. The double-sided metallic laminate which comprises a metallic layer at one side, a resin layer of a polyimide for improving adhesion with a metal, a resin layer of a low expansion polyimide having a thermal expansion coefficient of 5×10^{-6} to $2.5 \times 10^{-5} / ^\circ\text{C}$ and a metallic layer at the other side, has excellent flexibility and thermal resistance, can prevent curl and is securely laminated, particularly without the use of an adhesive. Therefore, it is suitable for a printed circuit board of a small size electric appliance.



MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.